GEOGRAPHIC SCHOOL BULLETINS

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MINISTRY of Education, in Lima, directs school expansion in forward-moving Peru

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- Trade Fairs, Shop Windows on the World
- Commerce Furrows Africa's Lake Victoria
- Black Hills, Gold Nugget on the Prairie

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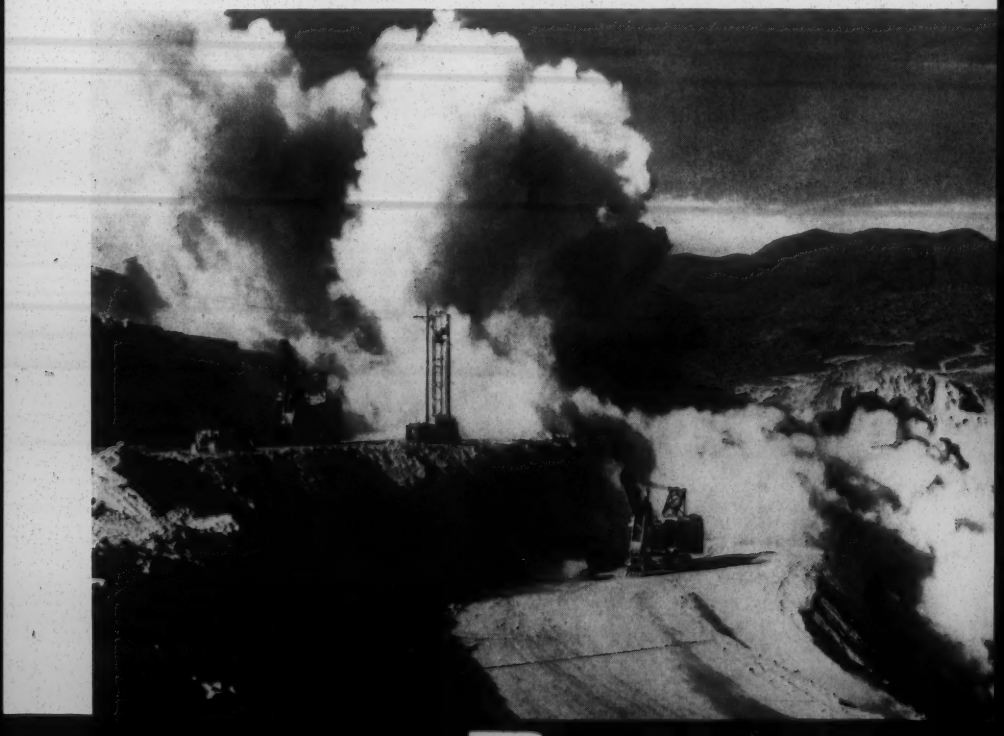
moves along single track rails and automatically lines the ditch with concrete (above). Where short rivers flow the desert sands bloom with Peru's leading export crops—cotton and sugar cane—as well as most of its rice. A spectacular irrigation project is under way to reverse the flow of lagoon waters from the eastern slopes through tunnels to the Lima watershed.

Farther north, around Talara, derricks bring up enough oil—two of every three barrels in Peru—to rank the country fourth in South American production. Talara was once a fishing village; today some 30,000 residents boast of their civic center, hospital, and sports stadium—all built by the International Petroleum Company.

Away from the coast in the Andean highlands, mammoth operations disturb the old Indian way of life. Lead and copper have become more valuable exports than oil. With a $200,000,000 investment, the Southern Peru Copper Corporation employs thousands of Indians and the most modern equipment to scoop copper from open pits at Toquepala (below). At Acari vast iron reserves await exploitation.

Over the Andean crest the land falls away in forested slopes to lowland Amazon jungle. This is the Peru that challenges the modern conquistador with fertile soil, timber, and oil. Point Four aid helps run an experimental agriculture station here. Indian farmers learn improved methods of raising coffee, rubber, and tea.

Another project encourages highland Indians to leave impoverished soil and settle lowland valleys. To that end R. G. LeTourneau, North American maker of land clearing equipment, is developing some 1,000,000 acres of jungle. E.S.



Peru's Minerals Spur 20th Century Drive

WHERE THE INCA built his civilization by hand the machine is fashioning 20th century Peru.

Lima sets the modern pace. All around, construction climbs skyward. Businessmen pass gleaming new shops and apartment houses to reach skyscraper office buildings. Soon they will be using a planned $4,000,000 airport for jet liners. Their products will flow through greatly expanded port facilities at near-by Callao.

Across town housewives crowd Lima's first suburban shopping center. The American-style supermarket (below) is one of 20 stores built around an open-air patio. Recently Sears Roebuck and Company opened a $1,000,000 department store to serve Lima's 1,000,000 population.

Enormous housing units sprout to shelter thousands of Limeños. Even the University of San Marcos, oldest in the Americas, is moving. A new University City rises between Lima and Callao.

Beyond the Lima skyline irrigation projects answer the coastal desert's call for water—vital to a country where about three-fourths of the 10,000,000 population are farmers and only 3 per cent of the land is in crops. Mechanical monsters carve the new waterways. In one operation a machine replaces scores of workmen. It

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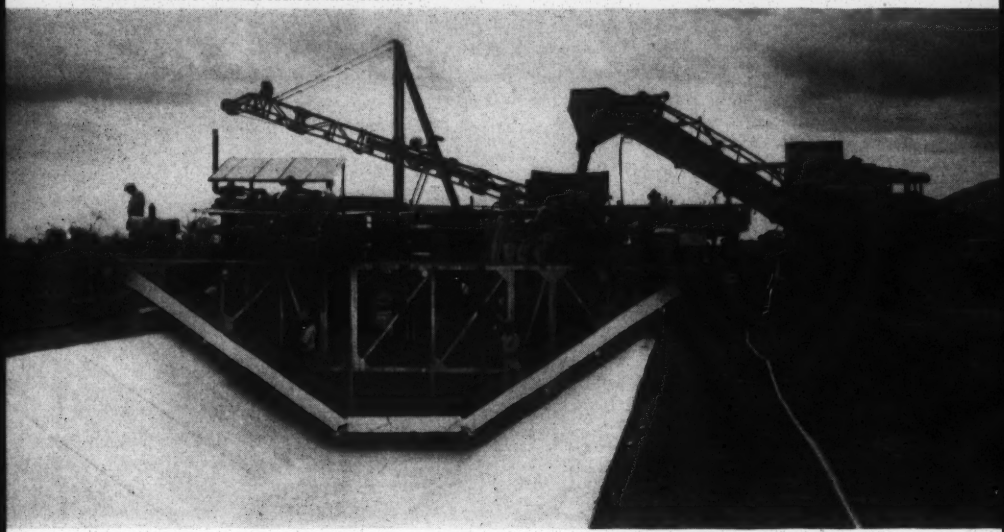

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of private enterprise. They provide potential buyers with a show window of products. To the dismay of Soviet "businessmen" who have often lagged behind their promises, these goods can be purchased for immediate delivery. What's more, U. S. exhibitors openhandedly give advice to both buyers and sellers. A German linen shop owner was told where to buy the bath towels he had just seen in an American model house. A grocer was informed where to inquire about floor plans for a U. S.-style supermarket. An Italian was introduced to American businessmen who might want to import his ceramics.

But trade fairs make their greatest impact upon ordinary people. On the first day of the 1957 fair at Poznan, Poland, an estimated 85,000 Poles filed through a model home, gazing at the 264 varieties of frozen foods, at the refrigerators and washing machines. So pleased were U. S. officials at their first exhibit behind the Iron Curtain that they ordered a permanent pavilion erected for future Poznan fairs.

There is usually something for the children too. At Zagreb, Yugoslavia, small fry stood entranced before a machine that turned powdered milk into ice cream. Best of all, the ice cream was given away in sample cones. In Morocco, a modern playground kept the children amused while their parents inspected a model school building peopled with Moroccan students.

Children—and adults—of other countries will soon see such displays. In the next six months, the U. S. Department of Commerce's Office of International Trade Fairs has arranged exhibits for Tunis, Tunisia; Bangkok, Thailand; Tokyo, Japan; Paris, France; Casablanca, Morocco; Poznan, Poland; Barcelona, Spain; and Calcutta, India.

If plans mature, Russians in Moscow will soon have a look at U. S. products, too.

At each of the fairs, U. S. representatives tell America's story. They inform such fairgoers as the Yugoslav (below, left) that consumer goods like the power lawn mower he is trying out represent the product of many years of energetic labor and industrialization. The average American worker, he is told, can afford to buy this do-it-yourself tool because he has earned an increasing share of the nation's income by his work. Trade fair exhibits attempt to place U. S. products in a setting of the American way of life. The enthusiastic response of citizens in many countries seems to indicate it's a good way. A.P.M.

U. S. DEPARTMENT OF COMMERCE

MOSLEM women at the Casablanca fair watch demonstrator unveil mysteries of brooding baby chicks.

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Uncle Sam Goes to the Fair

WHEN THE BRUSSELS World's Fair closed its shiny doors last week, some 38 million people from all over the world had strolled down its sparkling Avenue of Nations (above). Within daringly designed buildings they had tasted the scientific, cultural, and industrial life of half a hundred nations.

Those who have heard only of the last World's Fair—held in a meadow on Long Island near New York City in 1939—may be surprised to learn that fairs are as old as history. About 500 B.C., according to the Old Testament book of Esther, Persian King Xerxes placed on display the "riches of his kingdom." In ancient Greece, enterprising merchants brought out their finest glassware, carpets, and armor. Rome held colorful fairs each year in honor of Jupiter. Marco Polo, in the late 1200's, spun tales of great fairs at Kinsai, a major city of Kublai Khan's empire. The adventurer told of eye-popping piles of spices and jewelry, of stacks of fruits, jugs of wine.

Fairs still serve as crossroads of commerce. As trade between nations increased, a new type of fair developed—the international trade fair. Where people may have a chance to see a World's Fair only once or twice a decade, many can enjoy a trade fair each year right in their own countries. Since the end of World War II, more and more nations have found the trade fair a productive marketplace in which to display their wares.

The United States, whose industry had more orders than it could fill in early post-war years, took little part in international trade fairs until 1954. That year Soviet propagandists insinuated that the United States was "too busy making atomic bombs to take part in peaceful exhibits." Stung, President Eisenhower requested a modest program of participation in which government and industry would work as a team. Yankee ingenuity and hard work soon created such intriguing shows that the Russians backed out of several pledges to spread their goods side-by-side with American products.

Such exhibits do more than set the record straight on this country's system

TO KIDS fairs mean fun, not business. Turkish youngster, left, tests himself on a driver-training exhibit. An American orange juice machine gladdens Viennese children at Austrian Fair, above.

Trade Fairs Lure Buyers Abroad

THE GEODESIC dome at Casablanca's trade fair may not match the American pavilion at Brussels in glamor, but under its aluminum and nylon skin the same important job goes on. As in other trade fairs United States products lie displayed before the peoples of the world.

Each fair features a central theme. This Moroccan exhibition told the story of "Man Under the Sun," demonstrating how solar energy could change man's life. Themes are chosen to fit the country. At Bari, Italy, where crops sometimes perish for want of preserving facilities, the chief exhibit showed methods of freezing peaches, a prime Italian crop.

At Thessaloniki, Greece, visitors watched a live animal and poultry show. In Kabul, an outdoor Cinemascope theater packed 'em in with wide-screen movies of close-to-home Afghan scenes. In cosmopolitan Vienna, a strikingly conceived exhibit focused attention on such advanced techniques as the use of color television in teaching surgery. In science-conscious Japan, the DuPont Company's "Wonder World of Chemistry" (below, left) proved popular. In one demonstration the comely Japanese exhibitor at Osaka drove a nail into a piece of wood with one of her sponsor's plastic cups.

Trade fairs seem to appeal to everyone. In Poznan last year, Polish Premier Josef Cyrankiewicz (man with pin in his lapel, upper right) gave serious attention to a display of modern mining clothing and equipment. Less seriously, Polish citizens examined a collection of low-priced ladies' hats currently in fashion west of the Atlantic (lower left).

Curious youngsters form a large part of any crowd. Wide-eyed Turkish boys (lower right) watch a demonstrator at the İzmir fair as he reveals the secrets of a projector.

ALL PHOTOGRAPHS U.S. DEPARTMENT OF COMMERCE

river surging down over falls. The restrained Britisher wrote, "The most interesting sight I had seen in Africa."

"I saw," he declared, "that old father Nile without any doubt rises in the Victoria N'yanza (lake)."

His grateful sovereign rewarded him with the right to add a hippopotamus and a crocodile to his coat of arms.

Back in England, Burton still disputed the claim, doubting that Victoria was a single lake. A public debate between the rivals was set. But as Burton and the audience waited, news came that Speke had shot himself to death while hunting.

Proof of Speke's theory came in 1874, when the famed Henry M. Stanley, who found Livingston in the Tanganyika bush three years before, circumnavigated the lake. It was no easy feat. Stanley's steamer had to be carried in pieces from the African coast. Stanley needed 57 days to complete his voyage.

Today's steamships regularly circuit the lake in about a week. Their ports of call include Port Bell in Uganda, Kisumu in Kenya, and Mwanza in Tanganyika. They unload gold-mining equipment at Musoma and pick up sacks of coffee beans at Bukoba, both in Tanganyika.

Circling back to Uganda, ships stop at Bukakata and the capital, Entebbe, an elysian town set in green gardens above the lake. The Equator passes almost directly through Entebbe, but the elevation, about 4,000 feet above sea level, gives a pleasant climate, with temperatures ranging around 70 degrees.

Although about the size of West Virginia (only the salt Caspian Sea and Lake Superior are larger) Victoria offers no dramatic views of its immensity. Its waters are relatively shallow, and strewn with reefs and verdant islands.

Clouds hang heavily over the lake, giving birth to violent squalls. Both steamers and the lateen-rigged fishing boats of the natives (left) hug the shore.

Along the edges of the lake sway dense stands of papyrus, the reed that ancient Egyptians made into writing material—thus giving us the word "paper."

Today's tribesmen weave it into sleeping mats, fish traps, and nets.

In the bush country of Tanganyika, not far from the lake, high quality diamonds are found.

The lake's water itself has been forced to yield wealth. A $61,600,000 dam and power plant at Owen Falls, where the Nile begins its 4,145-mile journey to the Mediterranean, was dedicated by Queen Elizabeth II in April, 1954.

The dam will make Lake Victoria even larger. In 20 years the lake is expected to rise three feet. McD.

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

AFRICA'S GREAT LAKES

Victoria	26,640 sq. mi.
Tanganyika	12,700 sq. mi.
Nyasa	11,000 sq. mi.
Chad	6,300 sq. mi.
Rudolf	3,475 sq. mi.
Albert	1,640 sq. mi.
Edward	830 sq. mi.

EAST AFRICAN RAILWAYS AND HARBOURS

Africa's Bustling Inland Sea

A CENTURY AGO, no European had ever seen Lake Victoria, the world's second-largest body of fresh water and the major source of the White Nile.

Now the deep blue lake is the bustling heart of British East Africa. Steamers carry passengers and cargo between its ports. Planes from London land on its shores. A massive hydroelectric project harnesses the Nile to provide power for local industries and to help irrigate Sudan and Egypt to the north.

But Victoria, despite its regal English name and frosting of European civilization, remains stubbornly African. At Entebbe, Uganda, visitors walk from modern hotels, where imported petunias and marigolds bloom, to a swimming cove heavily fenced to keep out crocodiles. A rolling golf course has special rules—a player may pick up his ball without penalty if it rolls into a hippo footprint.

Crewmen of ships carrying Uganda's cotton crop sometimes mistake thick clouds of *kungu* flies for waterspouts or the smoke of a rival steamer. The insects form in such dense masses that they force vessels to slow down and feel their way through the "fly-fog." More dangerous are the *tsetse* flies, carriers of the dread sleeping sickness, which also abound on Victoria's swampy shores.

This year marks the 100th anniversary of the discovery of Victoria. Although Arab slavers had doubtless seen the lake, it remained for a British explorer, John Speke, to confirm its existence. He had a frustrating time of it, the rigors of primitive African travel being less troublesome than the doubts of a fellow explorer.

While camped on the shore of Lake Tanganyika, which, with Sir Richard Burton, he had discovered earlier in 1858, Speke heard of a much larger lake "so broad that you could not see across it and nobody knew its length."

Burton was fever-ridden, so Speke struck out north without him. Coming to the shore of the lake, he named it for his Queen. Elated, he deduced that it was the principal headwater of the River Nile, a geographic landmark men had sought since antiquity.

But Burton didn't believe him. The two men quarreled, virtually stopped speaking to each other, and returned to England bitter enemies.

Four years later, Speke returned. At the northern edge of his lake, he saw a

But on this journey his soldiers discovered gold. The news spread like a prairie fire.

Although the government attempted to keep settlers out of the Sioux domain, it was unable to hold back the stampede of grizzled prospectors, gold-hungry adventurers, and gunmen.

Bat Masterson passed through. Wyatt Earp, clothed in his stern reputation as a marshal in Kansas cattle towns, came to the Hills. Oddly, Earp went into business as a firewood dealer, but did once ride shotgun on a stage carrying some $200,000 worth of bullion.

In Deadwood, Wild Bill Hickok made his last mistake. He broke his own rule and sat down to the card table with his back to the door. Crooked Nose Jack McCall walked in and shot him dead. Calamity Jane, the bullwhacking prairie flower, drifted in and out of the Hills, and lies today beside Wild Bill on Mount Moriah, overlooking Deadwood.

Near by are the graves of Preacher Smith and Potato Creek Johnny. There is no resting place for Deadwood Dick. Although he seems as real as the rest, he lived only in fiction.

The gun-slingers and hard-eyed men are remembered, but it was a couple of pick-and-shovel prospectors who gave the Hills their most enduring industry.

Mose and Fred Manuel were not particularly colorful. The brothers weren't seeking the end of the rainbow or uncountable wealth. They simply wanted to build enough of a stake to allow them to go home and settle down.

They struck their "home stake" at Lead (pronounced *leed*). Soon they sold out to a syndicate headed by George Hearst. The Homestake was incorporated in California, and soon an 80-stamp crushing mill was on its way east by train and oxcart.

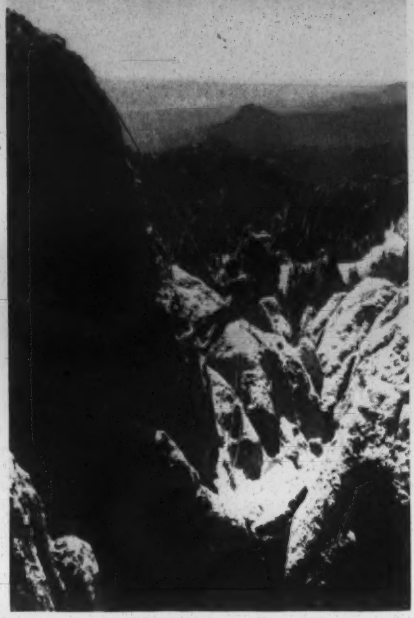
Despite problems of water, transport, and Indian raids, the Homestake prospered. The Hearsts, whose son, William Randolph Hearst, became a newspaper tycoon, took an active interest in the mine and its workers. Homestake pioneered safety techniques and methods of extracting minute particles of gold from hard rock.

The Homestake emerged as the greatest gold mine in the New World. Decades later, it retains its position as the nation's top gold producer—and it has enormous reserves of ore to work on. Its stair-like buildings climb over an entire hillside.

Few Homestake miners ever see anything resembling gold. From each ton of ore comes only about enough gold for a wedding ring. F.S.

See Also: "Back to the Historic Black Hills" in the October, 1956, issue of the *National Geographic Magazine*. The area shows on the Society's new Atlas-series map of the North Central United States, available November 1.

ALL PHOTOGRAPHS BY NATIONAL GEOGRAPHIC PHOTOGRAPHER BATES LITTLEHALES



Black Hills

Visitors Find Green Mountains Steeped in Golden Memories

THERE'S STILL gold in them thar Black Hills.

And grandeur, fun, and history to boot.

Rising out of the prairie of South Dakota and edging into Wyoming, the Black Hills are neither black nor hills. They are deep green and they are real mountains—Harney Peak rises 7,242 feet above sea level.

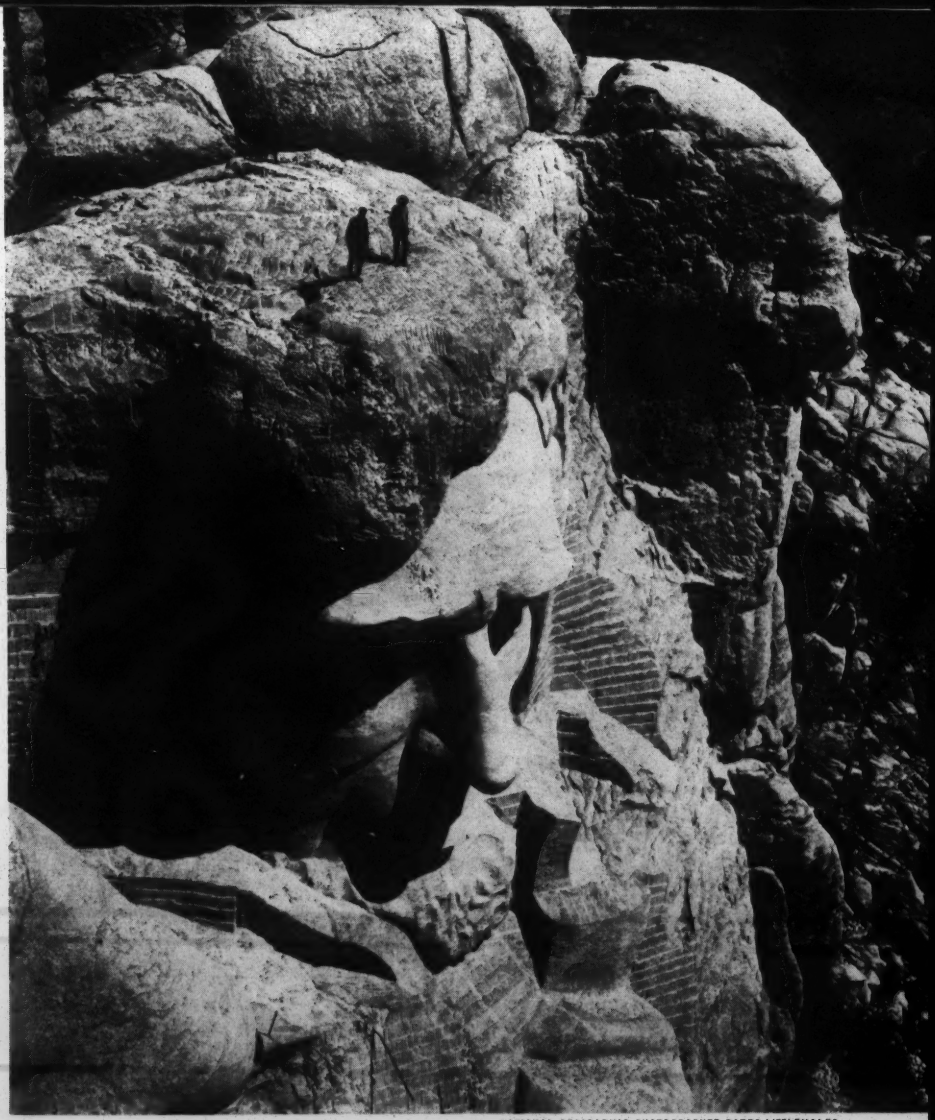
Today, vacationers vastly outnumber prospectors, but the Homestake Mine at Lead, South Dakota, sits atop the richest gold lode in the Western Hemisphere. It has ground out more than half a billion dollars worth since 1878, and continues to produce some $20,000,000 each year. It has only one customer, the United States Government.

Three miles away in a gulch is the famed old town of Deadwood. Its Broken Boot Mine no longer sends gleaming metal to the assay office, but it has been opened to visitors as a relic of the feverish gold rush days. Tourists stuff their pockets with its ore.

In the golden times here a large cast of colorful characters collided with the raw frontier, producing true tales and legends that live on in memory, in books and magazines, and on television.

Back in 1874, the Hills belonged by treaty to the Sioux. Then General George Custer, his yellow mane flying, rode in at the head of an expedition. Two years later he was to fall, with all his men, at the "last stand" beside the Little Big Horn.

THE BLACK HILLS pull travelers like a magnet. They can climb jagged rocks (above) or travel by stumble-proof burro up Bear Butte to examine abandoned gold diggings against a peak-and-prairie background (right). The Hills also have gold on the hoof. At the annual Black Hills Roundup in Belle Fourche (locally pronounced *bell foosh*) cowboys stage a rodeo with bucking horses and Brahman bulls for the delight of visitors (below).



NATIONAL GEOGRAPHIC PHOTOGRAPHER BATES LITTLEHALES

Faces of America's Greatness Loom in Granite over the Black Hills

"I WANT SOMEWHERE in America," Sculptor Borglum wrote, "a few feet of stone that bears witness [to] the great things we accomplished as a nation, placed so high it won't pay to pull it down for lesser purposes . . . carved . . . as close to heaven as we can." He found his site on Mount Rushmore in the Black Hills. In 14 years of work, Borglum created colossal likenesses in living granite of Presidents Washington, Jefferson, Theodore Roosevelt, and Lincoln. The face of Lincoln (above) stretches 60 feet from hairline to chin. The nose alone is longer than the entire face of Egypt's Sphinx. Borglum's workers first roughed out the head with dynamite, then shaped it with air drills that left slash marks on the hair and surrounding stone. Pneumatic chisels smoothed the face. Asked how long the heads would last, Borglum chuckled: "When I learned that this granite erodes perhaps an inch in 100,000 years, I added a foot to Washington's nose. Nobody could tell the difference, and it will give him another million years!"

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